CATHERINE SANCHANA I

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EDUCATION

Program	Institution	% / CGPA	Year of completion
Ph.D. (Civil - Pavement Engineering)	Indian Institute of Technology Madras, Chennai	-	July 2021-Ongoing
M.Tech. (Civil - Transportation Engineering)	Indian Institute of Technology Madras, Chennai	9.67/10	June 2021
B.E. (Civil Engineering)	Thiagarajar College of Engineering, Madurai (Anna University, Chennai)	9.40/10	April 2018
XII	St. Joseph's Anglo-Indian Girls' Higher Secondary School, Tiruchirappalli	95.8%	March 2014
X	St. Joseph's Anglo-Indian Girls' Higher Secondary School, Tiruchirappalli	96%	April 2012

SCHOLASTIC ACHIEVEMENTS

- Received the K. Devarajan Memorial Prize for securing the highest CGPA in M.Tech. – Civil Engineering: Transportation Engineering division, IIT Madras for the 2019-2021 batch.
- Have obtained the third highest CGPA in the Department of Civil Engineering, Thiagarajar College of Engineering, Madurai for the 2014-2018 batch.
- Secured AIR 885 in GATE 2019 by procuring a score of 734 on 1000.
- Secured B grade in 'Business English Certificate' examination conducted by Cambridge University Press.

COURSE WORK

M. Tech.
- Pavement Materials
- Pavement Management System
- Urban Transportation Planning
- Traffic Engineering and Management
- Geometric Design of Highways
- Probability and Statistics
- Pavement Analysis and Design
- Transportation Engineering Design Studio
- Pavement Materials and Evaluation Laboratory
- Statistical Design and Analysis of Experiments
- Pavement Construction Technology
- Traffic Flow Theory
- Transportation System Analysis
- Concrete Pavement Technology

EQUIPMENT PROFICIENCY

- Penetrometer
- Softening point equipment
- Vacuum capillary viscometer
- Ductility
- Rolling thin film oven
- Pressure aging vessel
- Rotational viscometer
- Dynamic shear rheometer
- Impact testing machine
- Marshall compactor and testing machine
- CORELOK

SOFTWARE PROFICIENCY

- Origin
- MATLAB
- KENPAVE
- RHEA
- MS Office
- LaTex
- AutoCAD

INTERNSHIP

- **Characterisation of Total Petroleum Hydrocarbons in a bioremediation pit at KPL, Ennore by Gravimetric and GC-MS Analysis** (June-July 2017 at IIT Madras)
  Soil and underground water samples were collected from a bioremediation pit at KPL, Ennore and the Total Petroleum Hydrocarbons were characterised and quantified by Gravimetric and Gas Chromatography-Mass Spectroscopy (GC-MS) analysis and the results were compared.

PROJECTS

Undergraduate Project

- **Design and estimation of earthquake resistant multi-storey residential building using STAAD.Pro** G+4 building was designed for all possible combinations of static loads and then analysed for earthquake forces. Building was redesigned for alternative building material (Autoclaved Aerated Concrete), checked for compatibility with IS 1893: 2016 and cost of the two buildings was compared.

Graduate Project

- **Class Projects**
  - **Geometric design of an interchange**: Geometric Design of Highways course
  - **Design of bituminous pavement**; **Overlay design**; **Signal design**; **Road safety audit**: Transportation Engineering Design Studio course
- **M.Tech. Thesis**
  Rheological behavior of binder and mastic using Large Amplitude Oscillatory Shear (LAOS)
  Different methods of determining linearity for binder and mastic when subjected to LAOS were explored and different modes of energy dissipation of the bituminous materials when subjected to repeated loading were quantified using a viscoelastic model and compared across various test conditions.

PhD Dissertation

Mastic has a significant influence in the behavior of bituminous mixtures but it is the least explored because of its complex nature. The proposed research intends to explore the fatigue behavior of mastic for various filler and binder properties.

PUBLICATIONS

Sanchana, I.C., Sandeep, I.J.S., Divya, P.S., Padmarekha, A and Murali Krishnan, J. (2021) "Prediction of nonlinear behavior of bitumen and mastic using large amplitude oscillatory shear". International Journal of Pavement Engineering (Communicated).